DOCUMENT RESUME

ED 172 947 PS 010 722

AUTHOR Slaughter, Diana T.; And Others
TITLE Observing Play Between Mothers and Toddlers.
SPONS AGENCY Grant Foundation, New York, N.Y.; National Inst. of Child Health and Human Development (NIH), Bethesda, Md.
PUB DATE Mar 79
NOTE 14p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (San Francisco, California, March 15-18, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavior Change; Infants; *Interaction Process Analysis; *Intervention; Mothers; *Parent Child Relationship; Parent Education; *Play; Preschool Children; *Program Evaluation

ABSTRACT

This document on mother-infant interaction reports differences found between mothers in a parent education program and a control group. The parent education program provided two different informal methods of stimulating mothers' awareness of their influence on their children's learning and development. Both programs stressed maternal responsivity to the child's needs and ongoing behaviors. The subjects were 68 mother-infant dyads grouped by program participation: (1) mothers in a discussion group (N=21), (2) mothers who had observed demonstrators modeling toy play with their children (N=19) and (3) the control dyads (N=28). The dyads were videotaped for 24 minutes each on two occasions in a simulated living room setting and behavior was coded at 10-second intervals. A higher degree of mother-infant interaction was found for program mothers (particularly in the discussion group) than for the controls at the second observation). Differences in the infants' play, however, were not found to be in a linear relation to program vs. control. The data appear to suggest that the three groups of children developed different structural patterns of play over time and that they used language differently during play. Five tables present results. (Author/BH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

SYMPOSIUM: TOWARDS NEW CRITERIA FOR SUCCESSFUL INFANT INTERVENTION PROGRAMS--TARGETING PARENTS?

OBSERVING PLAY BETWEEN MOTHERS AND TODDLERS[1,2,3]

Diana T. Slaughter
School of Education
Northwestern University

Margaret Beale Spencer
Department of Psychology
Emory University

Frances Stott
School of Education
Northwestern University

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Diana T. Slaughter

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED172947

PS010722

RATIONALE

Our parent education programs provided two different informal methods of stimulating mothers' awareness of their own potentially influential or even causal roles in their children's learning and development. Neither method, as elaborated, emphasized direct didactic teaching of young children. Rather, both stressed maternal responsivity to the child's needs and ongoing behaviors. Evidence also suggests that, under normal home conditions, mothers of young children do not "teach" by using prepared lectures or scripts at specified times.

Because we wished to both obtain a comparable baseline on all participating dyads and yet not sacrifice the essential features of teaching in young children's home settings, we designed a situational assessment of play behaviors between our mothers and their toddlers. Essentially, we expected that we could evoke exploratory and play behaviors in children and that some classes of maternal behaviors would be more encouraging of, and thus more responsive to, these ongoing child activities than others.

HYPOTHESES

We predicted that program group mothers, by comparison to control group mothers at time 2, but not time 1, of the study would:

1. less often direct or suggest play activities to their children;

---

[1]Paper presented at the Biennial Meetings of the Society for Research in Child Development, March 15-18th, 1979, San Francisco, California.

[2]Professor Norman Bowers and Harry Fassl of Northwestern University were especially helpful with data analyses for this study.

[3]This portion of our research was supported by funds from the National Institute of Child Health and Human Development and the Grant Foundation of New York.

2. more often be involved in play with their children (interaction);
3. more often support, expand, and instruct their children during play with them;
4. less often restrict or redirect their children during the play.

We also predicted that program group children, by comparison to control group children at time 2, but not time 1, of the study would:

1. spend more time in exploratory and play activities in contrast to nonplay (discrepant, transition, social contact) activities;
2. spend more time talking during play (object use, verbal; groups, verbal);
3. demonstrate theoretically more complex structuring of behavior during play. Specifically, they would do more relational grouping of two or more objects (groups, verbal and non-verbal), more direct copying of earlier maternal behaviors (imitation), and more pretend play (representation), as contrasted with simple exploration of objects (object use, verbal and non-verbal).

METHOD

Videotaped observations were made in a simulated living room setting established at each housing project site. The most unusual feature of the room was the variety of toys placed in its center at the start of each session. Mothers were instructed to try to behave as much like they would at home during the 24 minute session. Brief, post-observation interviews with mothers were conducted to obtain a measure of their comfort during the taping, and their perceptions of their children's comfort. No significant differences were found between groups on our index of perceived comfort.

Observers rated social context, maternal teaching style and children's play behaviors at ten second intervals off of the videotapes. Context and maternal teaching style were rated by black female student observers. Children were rated by both black and white female student observers. Observers did not know the assigned treatment group of any dyad.

Interobserver agreements for rated maternal and child behavioral categories were established on six randomly chosen cases (attrited Ss) which were completely coded by independent judges. The results of each case were evaluated against a standard. Agreements were calculated similarly for both maternal and child behaviors.

The category chosen at each ten second interval was contrasted with the standard for that interval or, if in disagreement, with the

interval immediately following. If any particular coded interval was in agreement with the standard of either that interval or the one immediately following, it was judged correct. This procedure attempted to control for observer differences in timing and recording of their codes and focus directly upon the extent to which they essentially agreed upon what they saw.

Percentage agreements on social context (interacting, parallel, or independent) for the six cases ranged from .91 to 1.00 for one judge (average=96.5), and .94 to 1.00 for the other (average=97.7). Agreements on maternal teaching styles ranged from .70 to .97 for one judge (average=89.0) and .76 to .98 for the other (average=88.3). Agreements on child play behaviors ranged from .78 to .95 for the first judge, .62 to .92 for the second, and .79 to .91 for the third (averages=.84, .79, .83).

Table one presents observed cell frequencies, followed by a breakdown by sex of child. It also presents data on the average age of the children in each cell at the time of the first and second observations, as well as the average number of months into the programs. Finally, groups were contrasted as to the child's typical ordinal position in the family and number of other children under sixteen in the household.

Typically, each cell contained more female than male children. At the first observation, there was more variability in children's ages and length of time in programs by site (especially site C by comparison to sites A and B) than at the second observation. For the present analyses, a total of 68 dyads were available. Data reported encompass 18 minutes of the 24 minute session. The first two minutes and the last four were deleted so as to maximize comparability across cases and cells.

RESULTS

Results are summarized in Tables two through five. In Tables two and three raw scores which reflect total frequency of observed time per category, using ten-second intervals as markers, have been transformed using the natural log equation. Both raw and transformed scores were analyzed using multivariate analyses of variance and covariance procedures. The results were identical. However, because the transformed scores promote multivariate normality, we found that our findings were sharpened in the analyses which utilized them instead of raw total frequency counts. Thus, remaining tables present results using the transformed scores.

Table two lists all maternal teaching style variables coded at times 1 and 2, their means and standard deviations. Since this is essentially a 3x3 factorial design, variables which occurred too infrequently for any group/site were deleted from further analyses. This occurred with restricting at times 1 and 2, directing and suggesting at time 2. Most mothers never arbitrarily stopped their

children from engaging in some activity without offering alternatives. Typically, fewer than ten seconds could be characterized as restrictive. As children matured, that is, by time 2, little time was focused upon telling them what to do or upon enticing them into one or the other play activity. Such expenditures of effort dropped from an average of thirty to an average of about ten seconds in the observed sessions.

Table four presents a summary table of multivariate analyses of variance at time 1, using the remaining maternal variables. There are no main effects for groups, sites, and no interactions. All univariate F's were also non-significant.

At time 1, mothers in the total sample were perceived to be interacting with their children an average of eleven out of eighteen minutes. Conversely, they were totally uninvolved--not even just sitting and watching the children--an average of four minutes. During such times, mothers usually watched TV, read magazines, looked out the window or around the room (no theme).

Table five presents a summary table of multivariate and univariate analyses of covariance for time 2 data, using the time 1 measures as covariates. There is no significant main effect for site and there are no interactions. However, there is a significant multivariate F which indicates a main effect for group ($F=2.90$, $p<.01$). This suggests that the observed significant univariate F's can be comfortably interpreted. Notably, groups differ in the amounts of time mothers are judged to be interacting with their children, and the extent to which that interactive time is used to expand or elaborate upon the child's ongoing play activities.

Expanding, in our categorial system is defined as follows:

> The apparent function of the mother's behavior is to more deeply involve the child in his ongoing activity. The mother is not merely supportive, nor at the point of engaging a genuine interest on the child's part; rather she perceived a sustaining interest in an activity and deliberately attempts to enrich or elaborate upon it. The mother may expand either the content or the form of the child's activity, and she may do so verbally or demonstratively. Four examples can be offered:
>
> 1. The child places the toy canister on top of her head; as she stands in front of the mother doing this, mother smiles, saying, "Oh, I see you are wearing a big top hat!"
>
> 2. The child is observed by the mother to be dialing the toy telephone. She tells him to call his grandfather on the telephone, and when he does, she pretends to be the grandfather.

3. The child is observed to be placing blocks in two holes in the toy mailbox provided; he appears to ignore the possibility of using two other holes and the mother silently turns the mailbox around as if to call his attention to them.

4. The child begins to count blocks; as he continues, the mother pushes more blocks before him, in an effort to get him to count as far as he can. Alternatively, she may ask him about the different colors of the blocks.

In such contexts, the mother does not directly show or tell the child how to do something (instructing), praise or otherwise monitor his behavior (supporting). Rather, she actively participates and elaborates upon the child's own intrinsically motivated behavior.

At time 2, program mothers, particularly Discussion group mother, were (1) more likely to continue earlier high levels of involvement with their children, and (2) to use those sustained higher levels of interaction as time to elaborate upon their children's ongoing play activities. Discussion group mothers averaged twelve minutes of interaction, Toy Demonstration eight and one-half, and controls seven; at time 1, all groups averaged about eleven minutes.

In other analyses, no significant differences by sex of child were observed at time 2. Mothers of boys tended to increase interactive levels at time 2, by comparison to time 1. At time 2, mothers of boys devoted an average of seventy seconds to expansion, while mothers of girls devoted an average of ninety. Though our sample size was too small to conduct four way analyses, it did appear that program mothers of boys, in particular, increased their interactive time with their sons and, like mothers of girls, more often used that opportunity at time 2 to expand upon their sons' ongoing play activities.

Table three presents observed means and standard deviations for the child play variables at times 1 and 2. Discrepant, transition, and social contact refer to non-play activities.

Instances in which children were judged to be obviously unhappy or bored (discrepant), or primarily solicitous of their mothers' attention (social contact) occurred too infrequently in some cells to be included in further analyses. The total sample averaged forty seconds in discrepant activities at time 1 and twenty seconds at time 2. Even at time 1, social contact was rated an average of about twenty seconds; typically, children wanted to show or tell mother about something in the room. Conversely, few children obviously engaged extensively in pretend or make-believe play (representation). Though this activity increased somewhat by time 2 when

children in all cells averaged 38 to 40 months, the relative incidence is low, by comparison to other activities. Time increased from an average of thirty to forty seconds between observations 1 and 2. Accordingly, these variables were deleted from further analyses.

Table four indicates that there is no significant multivariate F for the child variables at time 1. Additionally, none of the univariate F's were significant.

Table five indicates that there is no significant multivariate F for site, nor for interactions. However, there is a significant multivariate F which indicates a main effect for group ($F=2.93$, $p<.01$). The univariate F's for groups may be considered.

At time 2, Toy Demonstration children expended more time silently exploring objects than children in the other two groups. Furthermore, both program groups, by comparison to controls, were more likely to talk while exploring objects. However, control group children were superior to other groups in the amount of time expended relating two or more objects silently (groups, nonverbal). Though the univariate F did not reach significance ($p=.079$), it should be noted that at time 2 Discussion group children also tended to spend more time relating two or more objects and talking while they did so, than the other groups.

For the total sample, Pearson correlations at time 2 between maternal interaction and child object use, verbal, and groups, verbal were (raw scores), respectively .51 ($p<.01$) and .58 ($p<.01$). Correlations between maternal expanding and these two variables were more moderate, .23 ($p<.05$) and .36 ($p<.01$) respectively. Thus, not all talking was done in the context of maternal-child verbal interaction.

Talking, for purposes of this study was defined as follows:

1. Verbal - Babbling, singing, inaudible stringing together of words, laughter, cries, screams, strong one to two word utterances, audible sentences, etc.

2. Nonverbal - Grunts, pants, other brief utterances associated with bodily actions, silence.

In the only non-play variable which occurred in sufficient frequency for further analyses, transition, the treatment groups appeared not to differ. That is, each group of children averaged about the same amount of time moving about the room, as if deciding what to do next. The overall time spent in this activity at time 1 was about eighty seconds; at time 2 it was about fifty seconds.

Toy Demonstration children devoted the highest amounts of time to sheer exploration, whether or not the activity was accompanied by speech utterances. Control children, as a group, were the least likely to explore objects. However, they expended almost as much time relating two or more objects as Discussion group children, though they were the least likely of all three groups to accompany this activity with verbalizations. In other analyses, no differences by sex of child were observed on any of the child variables.

DISCUSSION

In this study maternal behaviors coud be characterized by a simple linear model. As predicted, at time 2 program mothers interacted more with their children and, in particular, were more likely to expand upon their children's play. They did not, however, engage in significantly more supporting or instructing activities. On the remaining maternal variables, controls and program groups do not appear to differ significantly.

Our linear predictions that program children would spend more time in play, as compared with non-play activities; exhibit a theoretically more complex structural approach to play; and spend more time talking during play, than control children, however, were not entirely supported by our data.

Rather, the data suggested that the three groups of children developed different structural patterns of play over time, and that they used language differently during their play. They probably also used the available adult and object resources differently. Variables which could most easily be characterized in terms of linear increments or decrements were not those which varied most by groups. In the near future, we plan to examine the relationship between context, maternal teaching style, and child play structure per ten second interval to better characterize these differences in identified classes of events. What is clear is that whatever the specific nature of the evolving play patterns, mothers of program children, by comparison to controls, more often involved themselves in the experiences generated by their own children.

TABLE 1. OBSERVED CELL FREQUENCIES BY CHILD SEX; AVERAGES BY CELL BY CHILD AGE, TIME IN PROGRAM, BIRTH ORDER, AND NUMBER OF CHILDREN IN HOUSEHOLD.

	SAMPLE SIZE	CHILD SEX MALE/FEMALE	CHILD AGE AT TIME 1 (MONS) $\bar{X}$	SD	CHILD AGE AT TIME 2 (MONS) $\bar{X}$	SD	TIME IN PROGRAM AT FIRST OBS. $\bar{X}$	SD	TIME IN PROGRAM AT SECOND OBS. $\bar{X}$	SD	CHILD BIRTH ORDER ($\bar{X}$)	NO. OF OTHER CHILDREN IN CHILD's HOUSE ($\bar{X}$)
Discussion Group Site A	10	4/6	23.5	2.88	38.9	2.77	3.1	2.13	18.6	1.08	2	2
Toy Demonstration Group, Site A	6	2/4	26.2	3.06	39.5	2.57	4.5	2.51	17.8	0.75	1	2
Control Group Site A	7	2/5	26.1	2.27	40.1	1.22	4.1	2.97	18.0	1.00	3	3
Discussion Group, Site B	5	1/4	25.8	2.77	39.2	1.48	4.4	1.95	17.8	1.05	4	4
Toy Demonstration Group, Site B	7	3/4	26.8	2.19	38.8	1.34	6.6	1.27	18.4	0.98	2	3
Control Group, Site B	10	5/5	23.3	4.62	38.1	1.10	4.9	2.64	18.2	1.03	2	4
Discussion Group, Site C	6	3/3	27.8	2.14	39.8	1.33	6.5	0.55	18.5	1.22	3	3
Toy Demonstration Group, Site C	6	4/2	27.3	2.73	39.2	1.60	6.3	0.52	18.3	1.21	3	4
Control Group, Site C	11	4/7	28.6	2.38	39.8	1.54	6.4	0.52	17.7	1.00	3	5

TABLE 2. OBSERVED MEANS AND STANDARD DEVIATIONS OF DEPENDENT VARIABLES BY PROGRAM GROUP -MATERNAL TEACHING STYLE

	Mothers Discussion (N=21)		Toy Demonstration (N=19)		Control (N=28)	
Variable	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
(1) Inter 1	4.109	0.833	4.059	0.820	3.923	1.104
(2) Inter 2	4.198	0.519	3.475	1.312	2.744	1.864
(3) Restr 1	0.516	0.811	0.424	0.848	0.232[c]	0.524
(4) Restr 2	0.376	0.664	0.036[a,c]	0.159	0.392[a,c]	0.208
(5) Redir 1	1.918	0.903	1.734	0.916	1.708	1.181
(6) Redir 2	1.707	0.914	1.063	0.991	1.145	1.129
(7) Dirct 1	0.508	0.694	0.702	0.962	0.983	1.183
(8) Dirct 2	0.310	0.604	0.278	0.625	0.173[a]	0.553
(9) Suggs 1	0.576	0.849	0.671	0.987	0.810	0.963
(10) Suggs 2	0.303[c]	0.559	0.121[a,c]	0.528	0.039[a,c]	0.208
(11) Suprt 1	3.785	0.497	3.702	0.530	3.747	0.591
(12) Suprt 2	3.782	0.484	3.320	1.269	3.407	1.289
(13) Expan 1	1.669	1.135	1.425	1.140	1.437	0.956
(14) Expan 2	1.954	1.229	0.968	1.486	0.758	1.114
(15) Instr 1	1.422	1.422	1.569	1.289	1.599	1.094
(16) Instr 2	1.761	1.290	1.051	1.235	0.856	1.257
(17) Nothm 1	2.004	1.667	2.428	1.580	2.204	1.668
(18) Nothm 2	1.979	1.664	2.838	1.925	2.861	1.612

[a] zero occurrence at Site A

[b] zero occurrence at Site B

[c] zero occurrence at Site C

Note: Variables with zero occurrence in any of the nine cells were deleted from analyses of variance procedures.

TABLE 3. OBSERVED MEANS AND STANDARD DEVIATIONS OF DEPENDENT VARIABLES BY PROGRAM GROUP -CHILD PLAY STRUCTURES

Variable	Mothers Discussion (N=21)		Toy Demonstration (N=19)		Control (N=28)	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
(1) Discr 1	0.440[b]	0.898	0.898	1.314	0.538	1.055
(2) Discr 2	0.390[c]	1.093	0.175[c]	0.617	0.248[a,b]	0.131
(3) Trans 1	1.375	1.0(	1.519	1.089	1.810	0.821
(4) Trans 2	1.072	0.87[illegible]	1.290	0.895	1.240	0.998
(5) SoCon 1	0.376	0.790	0.351	0.736	0.386	0.773
(6) SoCon 2	0.143[a]	0.517	0.371	0.768	0.050[a,c]	0.262
(7) ObjNv 1	3.596	0.552	3.257	0.926	3.398	0.742
(8) ObjNv 2	3.002	0.781	3.672	1.533	3.0[illegible]	1.192
(9) Obj V1	2.469	1.117	2.435	1.449	2.126	1.275
(10) Obj V2	2.813	1.098	2.115	1.205	1.927	1.486
(11) Grp Nv1	2.361	1.229	2.153	1.354	2.308	1.236
(12) Grp Nv2	2.408	1.033	2.360	1.230	2.884	1.082
(13) Grp V1	1.537	1.354	1.599	1.248	1.286	1.287
(14) Grp V2	2.597	1.239	1.856	1.374	1.721	1.622
(15) Imit 1	1.424	1.240	1.808	0.962	1.965	1.242
(16) Imit 2	1.147	1.104	1.675	1.336	1.536	1.246
(17) Repre 1	0.395[c]	0.676	0.736[c]	1.181	0.526	1.130
(18) Repre 2	0.694	1.213	0.655	1.018	0.633	1.090

[a] zero occurrence at Site A

[b] zero occurrence at Site B

[c] zero occurrence at Site C

Note: Variables with zero occurrence in any of the nine cells were delete from analyses of variance procedures.

TABLE 4

SUMMARY TABLE OF MULTIVARIATE ANALYSES OF VARIANCE FOR TIME ONE MATERNAL TEACHING STYLE AND OBSERVED CHILD PLAY STRUCTURE DATA

Source	df	F - Ratio	
		Maternal Teaching Style[a]	Observed Child Play Structure[b]
Groups	12,108	<1	<1
Sites	12,108	1.62	1.70
Groups X Sites	24,189.6	1.15	1.46

[a]Variables used were designated Interacting, Redirecting, Supporting, Expanding, Instruction and No Theme.

[b]Variables used were Object Use, Verbal; Object Use, Non-Verbal; Grouping Verbal; Grouping Non-Verbal; Imitation; and Transition.

TABLE 5

SUMMARY TABLE OF MULTIVARIATE AND UNIVARIATE ANALYSES OF COVARIANCE FOR TIME TWO DATA USING TIME ONE MEASURES AS COVARIATES

A. Multivariate Analyses

Source	df	Maternal Teaching Styles	Observed Child Play Structures
Groups	12,96	2.90**	2.93**
Sites	12,96	1.49	<1
Groups X Sites	24,168.7	1.31	1.51

B. Univariate Analyses F-ratios

Variable	Groups (df=2,53)	Sites (df=2,53)	Groups X Sites (df=4,53)
1. Maternal Teaching Styles			
Interacting	6.92**	2.15	2.42
Redirecting	2.08	<1	1.42
Supporting	1.07	<1	1.99
Expanding	4.79**	<1	<1
Instructing	2.52	1.00	<1
No Theme	1.63	<1	1.22
2. Observed Child Play Structures			
Object Use-Non-verbal	4.33*	1.06	1.40
Object Use-Verbal	3.47*	<1	3.78**
Grouping-Non-verbal	1.85	<1	1.08
Grouping-Verbal	2.66	<1	1.34
Imitation	<1	<1	3.16*
Transition	<1	<1	1.71

**P<.01
*P<.05